Application	Page #
Basic Drugs	556
Serotonin Reuptake Inhibitors	552

pHidelity® C18 Columns

- Stable under extreme pH conditions.
- Patented technology protects the silica particle from dissolution.
- True C18 selectivity.

Restek is pleased to offer pHidelity® C18 columns, designed for analyses that require extreme pH conditions. Using technology patented by Selerity Technologies (US Patent 2005/0191503A1), pHidelity® silica-based columns have exceptional stability under aggressive pH conditions.

In pHidelity® columns, a polycarbosilane barrier layer protects the silica particle from extremely basic conditions. This layer, with multiple points of attachment to the silica particle, yields a modified surface with enhanced stability. A second layer is then attached, providing the functional group (C18). Using this approach to shield the silica surface, a highly durable stationary phase is created.

Even after 50 hours of exposure to base (pH 10) at 60°C, a pHidelity® column maintains its original column efficiency. (A decrease in column efficiency indicates the dissolution of support silica and loss from the column.) This exceptional performance ensures pHidelity® columns offer greater resolution under harsh mobile phase conditions and will continue to resolve your target compounds over a long column lifetime. A pHidelity® column also maintains a very consistent capacity factor, k', after exposure to pH 10 and 60°C. Under extremely basic conditions, a decrease in retention time indicates loss of both support silica and bonded phase. Backpressure in the pHidelity® C18 column is very stable, indicating little or no degradation of the packing material.

The patented process used to protect the support silica in pHidelity® columns ensures more consistent retention times over the lifetime of the column.

for more info

For more information about pH stable pHidelity® HPLC Columns, review the *Restek Advantage* 2007.01 at www.restek.com.

lit. cat.# 580133

pHidelity® C18 Columns

Physical Characteristics:

particle size: 3µm or 5µm
pore size: 140Å
pH limit: up to 12
temperature limit: 80°C

Chromatographic Properties:

Excellent stability under extreme pH conditions. True C18 selectivity in a silica-based stationary phase.

new!

Length	2.1mm ID cat.#	3.2mm ID cat.#	4.6mm ID cat.#
3µm Columns			
30mm	9579332	9579333	9579335
50mm	9579352	9579353	9579355
100mm	9579312	9579313	9579315
150mm	9579362	9579363	9579365
5µm Columns			
150mm			9579565
250mm			9579575

ordering note

To order a 2.1mm, 3.2mm, or 4.6mm ID column with a Trident Integral Inlet Fitting, add "-700" to the catalog number for the column.

Nominal additional charge

Example: 100mm x 4.6mm ID Ultra C18 column with Trident Integral Inlet Fitting: 9174315-700

Also order an XG-XF fitting (cat.#25026 or 25062), see page 337.
For guard cartridges for these columns, see page 339.

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Australian Distributors ECHnology
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RESTEK

Restek Capillary HPLC Columns

Physical Characteristics:

Allure® Basix:
particle size: 3µm, spherical
pore size: 60Å
carbon load: 12%
endcap: fully endcapped
pH range: 2.5 to 7.5
temperature limit: 80°C

Allure® PFP Propyl:
particle size: 3µm, spherical
pore size: 60Å
carbon load: 17%
endcap: fully endcapped
pH range: 2.5 to 7.5
temperature limit: 80°C

Ultra C18:
particle size: 3µm, spherical
pore size: 100Å
carbon load: 20%
endcap: fully endcapped
pH range: 2.5 to 7.5
temperature limit: 80°C

Allure® Biphenyl:
particle size: 3µm, spherical
pore size: 60Å
carbon load: 23%
endcap: yes
pH range: 2.5 to 7.5
temperature limit: 80°C

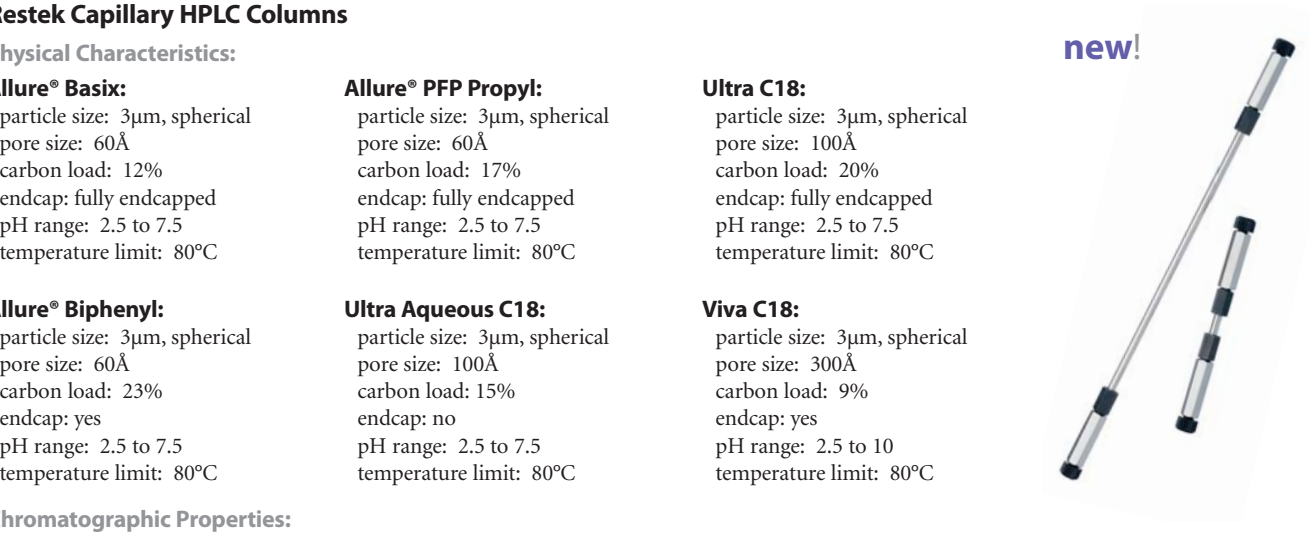
Ultra Aqueous C18:
particle size: 3µm, spherical
pore size: 100Å
carbon load: 15%
endcap: no
pH range: 2.5 to 7.5
temperature limit: 80°C

Viva C18:
particle size: 3µm, spherical
pore size: 300Å
carbon load: 9%
endcap: yes
pH range: 2.5 to 10
temperature limit: 80°C

Chromatographic Properties:

Available in a wide variety of stationary phases for acidic to basic compounds. Columns are suitable for small molecules using Allure® and Ultra phases and large biomolecules using Viva C18.

Length	0.3mm ID cat.#
Allure® Basix 3µm Capillary Columns	
50mm	916135B
150mm	916136B
Allure® Biphenyl 3µm Capillary Columns	
50mm	916635B
150mm	916636B
Allure® PFP Propyl 3µm Capillary Columns	
50mm	916935B
150mm	916936B
Ultra Aqueous C18 3µm Capillary Columns	
50mm	917835B
150mm	917836B
Ultra C18 3µm Capillary Columns	
50mm	917435B
150mm	917436B
Viva C18 3µm Capillary Columns	
50mm	951435B
150mm	951436B



- High quality, Restek manufactured packing materials.
- Superior packing technology ensures rugged, reproducible columns.
- Wide range of phases and dimensions available—please inquire.

HPLC Group
Kevin Davey, Larry Peters, Terry Cressman, Randy Romesberg, Becky Wittrig, Bruce Albright, Vernon Bartlett, Frank Dorman

ordering **note**

Looking for another stationary phase or capillary dimension?

Please contact Restek Technical Service at 814-353-1300 or 800-356-1688 (ext. 4) or support@restek.com to inquire.

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RESTEK

Pinnacle™ DB PFP Propyl and Biphenyl Columns

new! Pinnacle™ DB PFP Propyl Columns (USP L43)

Restek Manufactured Silica

Physical Characteristics:

particle size: 1.9µm, 3µm or 5µm, spherical
pore size: 140Å
carbon load: 6%
endcap: yes
pH range: 2.5 to 7.5
temperature limit: 80°C

Application	Page #
Benzodiazepines	.527

Chromatographic Properties:

Pinnacle™ DB PFP Propyl is a unique pentafluorophenyl phase with a propyl spacer, and uses a highly base-deactivated spherical silica manufactured by Restek. This highly base-deactivated packing exhibits excellent peak shapes for a wide range of compounds, including nucleosides, nucleotides, and halogenated compounds.

Length	1.0mm ID cat.#	2.1mm ID cat.#	3.2mm ID cat.#	4.6mm ID cat.#
1.9µm Columns				
30mm		9419232		
50mm		9419252		
100mm		9419212		
3µm Columns				
30mm	9419331	9419332	9419333	9419335
50mm	9419351	9419352	9419353	9419355
100mm	9419311	9419312	9419313	9419315
150mm	9419361	9419362	9419363	9419365
5µm Columns				
30mm	9419531	9419532	9419533	9419535
50mm	9419551	9419552	9419553	9419555
100mm	9419511	9419512	9419513	9419515
150mm	9419561	9419562	9419563	9419565
200mm	9419521	9419522	9419523	9419525
250mm	9419571	9419572	9419573	9419575

for more info

See page 306 for more information on our new 1.9µm Pinnacle™ DB columns.

new! Pinnacle™ DB Biphenyl Columns (USP L11)

Restek Manufactured Silica

Physical Characteristics:

particle size: 1.9µm, 3µm or 5µm, spherical
pore size: 140Å
carbon load: 8%
endcap: yes
pH range: 2.5 to 7.5
temperature limit: 80°C

Application	Page #
Steroids	.555

Chromatographic Properties:

Pinnacle™ DB Biphenyl is a unique reversed phase material that displays both increased retention and selectivity for aromatic and/or unsaturated compounds when compared to conventional alkyl and phenyl phases. Highly base-deactivated spherical silica manufactured by Restek. An excellent choice for the analysis of steroids, tetracyclines, drug metabolites, and other compounds that contain some degree of unsaturation.

Length	1.0mm ID cat.#	2.1mm ID cat.#	3.2mm ID cat.#	4.6mm ID cat.#
1.9µm Columns				
30mm		9409232		
50mm		9409252		
100mm		9409212		
3µm Columns				
30mm	9409331	9409332	9409333	9409335
50mm	9409351	9409352	9409353	9409355
100mm	9409311	9409312	9409313	9409315
150mm	9409361	9409362	9409363	9409365
5µm Columns				
30mm	9409531	9409532	9409533	9409535
50mm	9409551	9409552	9409553	9409555
100mm	9409511	9409512	9409513	9409515
150mm	9409561	9409562	9409563	9409565
200mm	9409521	9409522	9409523	9409525
250mm	9409571	9409572	9409573	9409575

Cathy Hetrick
Northwest States Sales Representative
3+ years of service!

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RESTEK

Allure® Silica Columns (USP L3)

Physical Characteristics:

particle size: 3µm or 5µm, spherical
pore size: 60Å
endcap: no
pH range: 2.5 to 7.5
temperature limit: 80°C

Chromatographic Properties:

Highly retentive phase for normal phase separations. Very high surface area, Type B silica packing.

Length	1.0mm ID cat.#	2.1mm ID cat.#	3.2mm ID cat.#	4.6mm ID cat.#
3µm Columns				
30mm	9160331	9160332	9160333	9160335
50mm	9160351	9160352	9160353	9160355
100mm	9160311	9160312	9160313	9160315
5µm Columns				
30mm	9160531	9160532	9160533	9160535
50mm	9160551	9160552	9160553	9160555
100mm	9160511	9160512	9160513	9160515
150mm	9160561	9160562	9160563	9160565
200mm	9160521	9160522	9160523	9160525
250mm	9160571	9160572	9160573	9160575

Allure® AK Columns

Physical Characteristics:

particle size: 5µm
pore size: 60Å
endcap: yes
pH range: 2.5 to 7.5
temperature limit: 80°C

Chromatographic Properties:

This highly retentive, highly selective phase, unique to Restek, was developed specifically for the analysis of aldehydes and ketones as DNPH derivatives. Allure® AK is a reversed phase HPLC material that has the unique ability to separate all thirteen carbonyl compounds specified in California Air Resources Board (CARB) Method # 1004, using a simple acetonitrile/water gradient, in less than 15 minutes. Other columns require long analysis times or the use of tetrahydrofuran.

Length	3.2mm ID cat.#	4.6mm ID cat.#
5µm Columns with Trident Integral Inlet Fittings		
200mm	9159523-700	9159525-700

Carbonyls by CARB Method 1004 on an Allure® AK column.

Sample:
Sample: dinitrophenylhydrazine (DNPH) derivatives of aldehydes/ketones
Inj.: 10µL
Conc.: 3µg/mL each analyte, as aldehyde/ketone
Sample diluent: acetonitrile

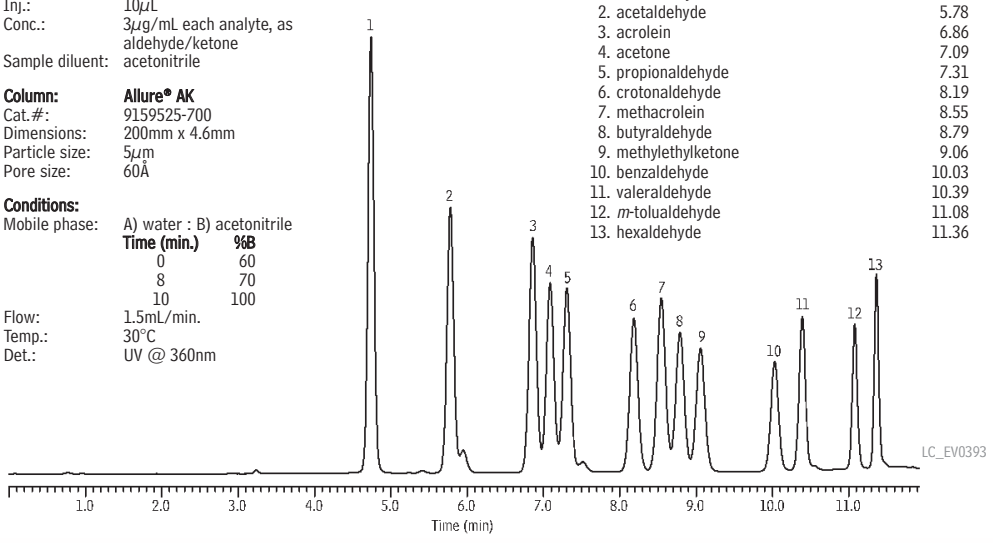
Column: Allure® AK
Cat.#: 9159525-700
Dimensions: 200mm x 4.6mm
Particle size: 5µm
Pore size: 60Å

Conditions:
Mobile phase: A) water : B) acetonitrile

Time (min.)	%B
0	60
8	70
10	100

Flow: 1.5mL/min.
Temp.: 30°C
Det.: UV @ 360nm

Peak DNPH derivative of:	Ret. Time (min.)
1. formaldehyde	4.74
2. acetaldehyde	5.78
3. acrolein	6.86
4. acetone	7.09
5. propionaldehyde	7.31
6. crotonaldehyde	8.19
7. methacrolein	8.55
8. butyraldehyde	8.79
9. methylethylketone	9.06
10. benzaldehyde	10.03
11. valeraldehyde	10.39
12. *m*-tolualdehyde	11.08
13. hexaldehyde	11.36



Frank Dorman
Director of Technical Development
12+ years of service!

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RESTEK

Allure® Biphenyl and Organic Acids Columns

Application	Page #
Antidepressants	551
Cannabinoids	526
Corticosteroids	553, 554
NSAIDs	557
Steroids	554, 555

free literature

Allure® Biphenyl HPLC Columns

Download your free copy from www.restek.com!

Flyer
lit. cat.# 580015A

Allure® Biphenyl Columns (USP L11)

Physical Characteristics:

particle size: 3µm or 5µm, spherical
pore size: 60Å
carbon load: 23%
endcap: yes
pH range: 2.5 to 7.5
temperature limit: 80°C

Chromatographic Properties:

Highly retentive and selective for aromatic and unsaturated compounds. Increased retention and selectivity, compared to phenyl phases. Excellent selectivity for steroids, tetracyclines, explosives, and other unsaturated compounds.

	1.0mm ID	2.1mm ID	3.2mm ID	4.6mm ID
Length	cat.#	cat.#	cat.#	cat.#
3µm Columns				
30mm	9166331	9166332	9166333	9166335
50mm	9166351	9166352	9166353	9166355
100mm	9166311	9166312	9166313	9166315
5µm Columns				
30mm	9166531	9166532	9166533	9166535
50mm	9166551	9166552	9166553	9166555
100mm	9166511	9166512	9166513	9166515
150mm	9166561	9166562	9166563	9166565
200mm	9166521	9166522	9166523	9166525
250mm	9166571	9166572	9166573	9166575

Allure® Organic Acids Columns

Physical Characteristics:

particle size: 5µm, spherical
pore size: 60Å
endcap: no
pH range: 2.5 to 7.5
temperature limit: 80°C

Chromatographic Properties:

Allure® Organic Acids columns provide enhanced retention and selectivity for polar organic acids, allowing the separation to be performed on a single 30cm column. An Allure® Organic Acids column effectively resolves key organic acids such as tartaric and quinic acids, using the chromatographic conditions specified in AOAC method 986.13. Retention is stable and reproducible, even with the 100% aqueous mobile phase specified in the AOAC method.

	3.2mm ID	4.6mm ID
Length	cat.#	cat.#
5µm Column		
150mm	9165563	9165565
250mm		9165575
300mm		9165585

Note: Other dimensions available on request.

Application	Page #
Carboxylic Acids	540
Fruit Juice Acids	541

ordering note

To order a 2.1mm, 3.2mm, or 4.6mm ID column with a Trident Integral Inlet Fitting, add "-700" to the catalog number for the column.

Nominal additional charge

Example: 100mm x 4.6mm ID Ultra C18 column with Trident Integral Inlet Fitting: 9174315-700

Also order an XG-XF fitting (cat.#25026 or 25062), see page 337.
For guard cartridges for these columns, see page 339.

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RESTEK

Allure® PFP Propyl Columns (USP L43)
Excellent Columns for LC/MS and ELSD

Physical Characteristics:

particle size: 3µm or 5µm, spherical
pore size: 60Å
carbon load: 17%
endcap: fully endcapped
pH range: 2.5 to 7.5
temperature limit: 80°C

Chromatographic Properties:

A pentafluorophenyl phase with a propyl spacer. Highly retentive for basic analytes. An excellent phase for separating nucleosides, nucleotides, purines, pyrimidines, halogenated compounds, β-blockers, and tricyclic antidepressants.

Application	Page #
Antibiotics	549
Catecholamines	525
Cocaine, Ecgonine Methyl Ester	527
Nucleic Acid Bases	523
Opiates	526
Pesticides	533

Length	1.0mm ID cat.#	2.1mm ID cat.#	3.2mm ID cat.#	4.6mm ID cat.#
3µm Columns				
30mm	9169331	9169332	9169333	9169335
50mm	9169351	9169352	9169353	9169355
100mm	9169311	9169312	9169313	9169315
5µm Columns				
30mm	9169531	9169532	9169533	9169535
50mm	9169551	9169552	9169553	9169555
100mm	9169511	9169512	9169513	9169515
150mm	9169561	9169562	9169563	9169565
200mm	9169521	9169522	9169523	9169525
250mm	9169571	9169572	9169573	9169575

Allure® Aqueous C18 Columns (USP L1)
Excellent Columns for LC/MS and ELSD

Physical Characteristics:

particle size: 5µm spherical
pore size: 60Å
endcap: no
pH range: 2.5 to 7.5
temperature limit: 80°C

Chromatographic Properties:

Highly retentive and selective phase for separating polar analytes, including polar acidic compounds. Compatible with highly aqueous (up to 100%) mobile phases. Highly base deactivated. An excellent choice when analyzing a wide range of compounds, as in LC/MS screening methods.

Length	1.0mm ID cat.#	2.1mm ID cat.#	3.2mm ID cat.#	4.6mm ID cat.#
5µm Columns				
30mm	9168531	9168532	9168533	9168535
50mm	9168551	9168552	9168553	9168555
100mm	9168511	9168512	9168513	9168515
150mm	9168561	9168562	9168563	9168565
200mm	9168521	9168522	9168523	9168525
250mm	9168571	9168572	9168573	9168575

Melissa Decker
Customer Service Representative
4+ years of service!

ordering **note**

To order a 2.1mm, 3.2mm, or 4.6mm ID column with a Trident Integral Inlet Fitting, add "-700" to the catalog number for the column.

Nominal additional charge

Example: 100mm x 4.6mm ID Ultra C18 column with Trident Integral Inlet Fitting: 9174315-700

Also order an XG-XF fitting (cat.#25026 or 25062), see page 337.
For guard cartridges for these columns, see page 339.

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restek **innovation**!

An Ultra Quat column and Ultra Quat Reagent Solution eliminate the need for ion pairing reagents in paraquat/diquat analysis.

for **more** info

For more information about the Ultra Quat system, review the *Restek Advantage* 2004 vol. 3 at ww.restek.com.

lit. cat.# 59051

free literature

Simple, Sensitive HPLC/UV Analysis for Paraquat and Diquat

Download your free copy from www.restek.com.

Applications Note
lit. cat.# 580006

Ultra Quat Columns

Physical Characteristics:

particle size: 5µm, spherical
pore size: 100Å
pH range: 2.5 to 7.5
temperature limit: 80°C

restek **exclusive**!

Chromatographic Properties:

A retentive, high-purity, base deactivated reversed phase packing. Ideal for the analysis of paraquat and diquat or other quaternary amines when used with Ultra Quat Reagent Solution mobile phase additive (cat.# 32441).

Length	4.6mm ID cat.#
5µm Column	
150mm	9181565

Ultra Quat Reagent Solution

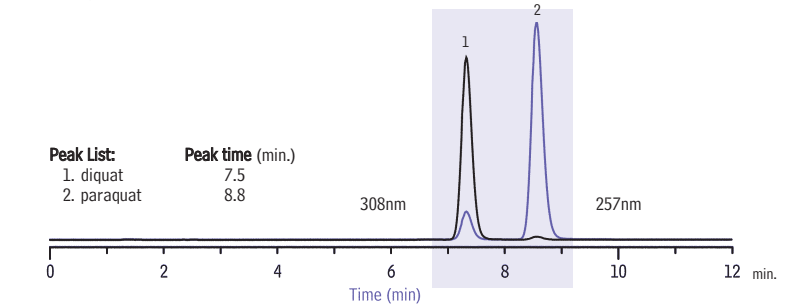
Use with Ultra Quat HPLC column. Dilute to 1 liter water, per instructions.

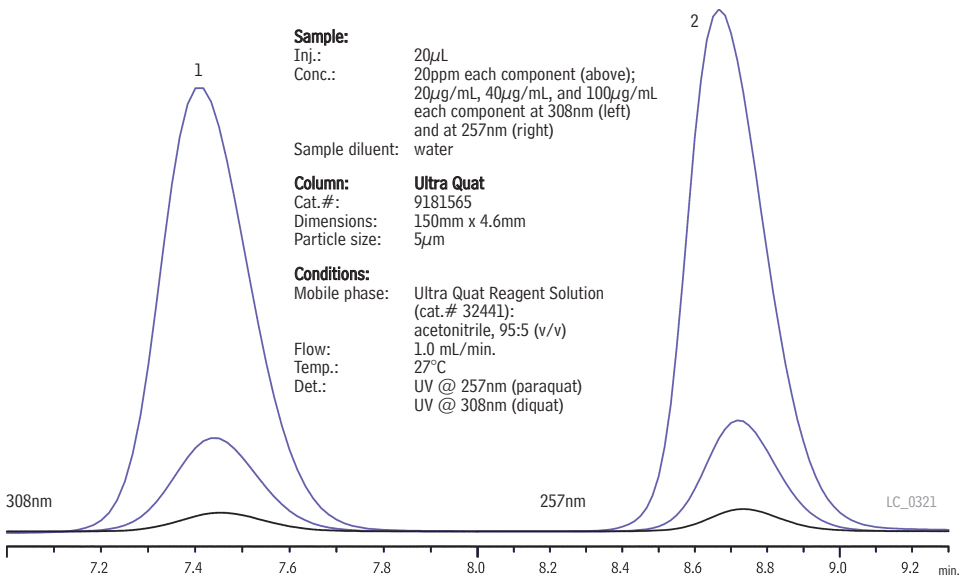
In water, 20mL/bottle
cat. # 32441 (ea.)

Paraquat & Diquat Calibration Mix

diquat dibromide paraquat dichloride
1,000µg/mL each in water, 1mL/ampul
cat. # 32437 (ea.)

Consistent resolution, retention times, and peak symmetry for paraquat and diquat on an Ultra Quat column.





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